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## Objectives


- ▶ Plan and design a chart
-  ▶ Create a chart
-  ▶ Move and resize a chart
-  ▶ Edit a chart
-  ▶ Format a chart
-  ▶ Enhance a chart
-  ▶ Annotate and draw on a chart
-  ▶ Preview and print a chart

Worksheets provide an effective way to organize information, but they are not always the best format for presenting data to others. Information in a selected range or worksheet can easily be displayed as a chart. Charts, often called graphs, allow you to communicate the relationships in your worksheet data in readily understandable pictures. In this unit, you will learn how to create a chart, how to edit a chart and change the chart type, how to add text annotations and arrows to a chart, and how to preview and print a chart.  For the annual meeting Jim Fernandez needs you to create a chart showing the six-month sales history for the MediaLoft stores in the eastern division. He wants to illustrate the growth trend in this division.





# Planning and Designing a Chart

Before creating a chart, you need to plan the information you want your chart to show and how you want it to look.  In early June, the Marketing Department launched a regional advertising campaign for the eastern division. The results of the campaign were increased sales during the fall months. Jim wants his chart for the annual meeting to illustrate the growth trend for sales in MediaLoft's eastern division stores and to highlight this sales increase.

## Details

Jim wants you to use the worksheet shown in Figure D-1 and the following guidelines to plan the chart:

► **Determine the purpose of the chart and identify the data relationships you want to communicate graphically**

You want to create a chart that shows sales throughout MediaLoft's eastern division from July through December. In particular, you want to highlight the increase in sales that occurred as a result of the advertising campaign.

► **Determine the results you want to see, and decide which chart type is most appropriate to use**

Different charts display data in distinctive ways. Some chart types are more appropriate for particular types of data and analyses. How you want your data displayed—and how you want that data interpreted—can help you determine the best chart type to use. Table D-1 describes several different types of charts and indicates when each one is best used. Because you want to compare data (sales in multiple locations) over a time period (the months July through December), you decide to use a column chart.

► **Identify the worksheet data you want the chart to illustrate**

You are using data from the worksheet titled “MediaLoft Eastern Division Stores” shown in Figure D-1. This worksheet contains the sales data for the four stores in the eastern division from July through December.

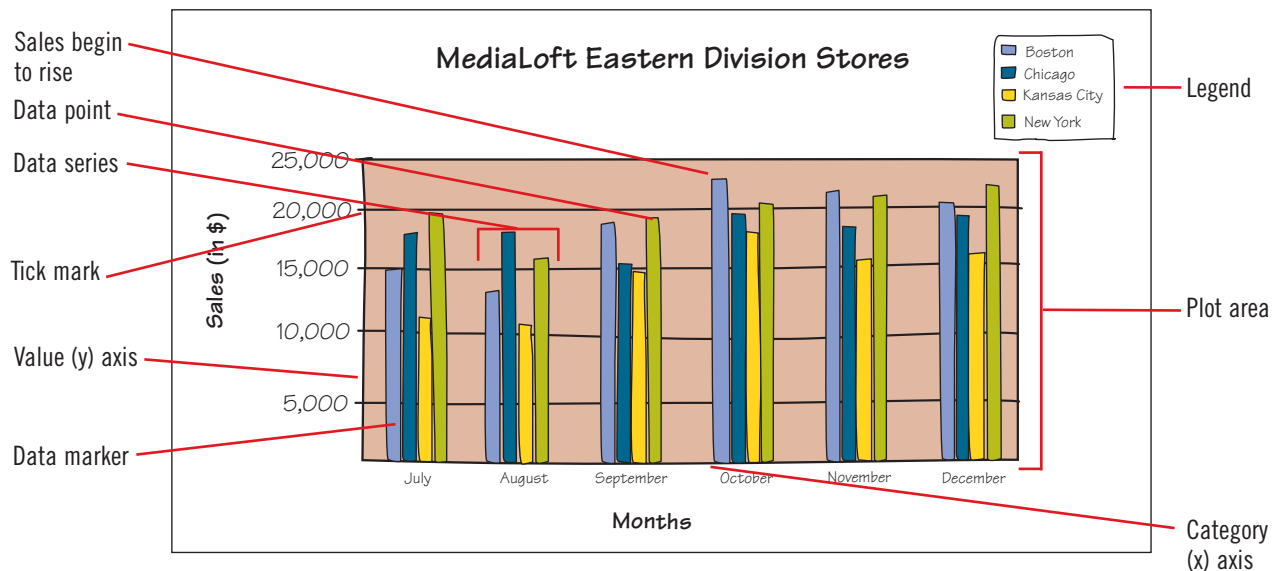
► **Sketch the chart, then use your sketch to decide where the chart elements should be placed**

You sketch your chart as shown in Figure D-2. You put the months on the horizontal axis (the **x-axis**) and the monthly sales figures on the vertical axis (the **y-axis**). The x-axis is often called the **category axis** because it often contains the names of data groups, such as months or years. The y-axis is called the **value axis** because it often contains numerical values that help you interpret the size of chart elements. (In a 3-D chart, the y-axis is referred to as the z-axis.) The area inside the horizontal and vertical axes is called the **plot area**. The **tick marks** on the y-axis create a scale of measure for each value. Each value in a cell you select for your chart is a **data point**. In any chart, a **data marker** visually represents each data point, which in this case is a column. A collection of related data points is a **data series**. In this chart, there are four data series (Boston, Chicago, Kansas City, and New York), so you include a **legend** to make it easy to identify them.

**FIGURE D-1:** Worksheet containing sales data

MediaLoft Eastern Division Stores							
FY 2003 Sales Following Advertising Campaign							
	July	August	September	October	November	December	Total
Boston	15,000	13,000	18,600	22,500	22,300	20,500	\$ 109,600
Chicago	17,200	18,200	17,000	19,500	18,500	19,200	\$ 111,900
Kansas City	12,100	11,400	15,000	18,100	17,000	16,500	\$ 109,600
New York	19,500	16,000	18,800	20,500	22,000	23,000	\$ 90,100
<b>Total</b>	<b>\$ 63,800</b>	<b>\$ 58,600</b>	<b>\$ 69,400</b>	<b>\$ 80,600</b>	<b>\$ 79,800</b>	<b>\$ 79,200</b>	<b>\$ 421,200</b>

**FIGURE D-2:** Column chart sketch



**TABLE D-1:** Commonly used chart types

type	button	description
Area		Shows how individual volume changes over time in relation to total volume
Bar		Compares distinct object levels over time using a horizontal format; sometimes referred to as a horizontal bar chart in other spreadsheet programs
Column		Compares distinct object levels over time using a vertical format; the Excel default; sometimes referred to as a bar chart in other spreadsheet programs
Line		Compares trends over even time intervals; appears similar to an area chart, but does not emphasize total
Pie		Compares sizes of pieces as part of a whole; used for a single series of numbers
XY (scatter)		Compares trends over uneven time or measurement intervals; used in scientific and engineering disciplines for trend spotting and extrapolation
Combination	none	Combines a column and line chart to compare data requiring different scales of measure



## Excel 2002

# Creating a Chart

To create a chart in Excel, you first select the range containing the data you want to chart. Once you've selected a range, you can use the Excel Chart Wizard to lead you through the process of creating the chart. Using the worksheet containing the sales data for the eastern division, Jim asks you to create a chart that shows the growth trend that occurred as a result of the advertising campaign.

## Steps 1 2 3 4

### QuickTip


When charting any data for a given time period, make sure all series are for the same time period, so you don't misrepresent your data.

### Trouble?

You can create a chart from non-contiguous cells by pressing the Option key and selecting each range.

1. Start Excel, open the Project File **EX D-1** from the drive and location where your Project Files are stored, then save it as **MediaLoft Sales - Eastern Division**

You want the chart to include the monthly sales figures for each of the eastern division stores, as well as month and store labels. You don't include the Total column and row because the monthly figures make up the totals, and these figures would skew the chart.

2. Select the range **A5:G9**, then click the **Chart Wizard button**  on the Standard toolbar  
The selected range contains the data you want to chart. The Chart Wizard opens. The Chart Wizard - Step 1 of 4 - Chart Type dialog box lets you choose the type of chart you want to create. The default chart type is a Clustered Column, as shown in Figure D-3. You can see a preview of the chart using your selected data by clicking, then holding the **Press and Hold to View Sample** button.

3. Click **Next** to accept Clustered Column, the default chart type

The Chart Wizard - Step 2 of 4 - Chart Source Data dialog box lets you choose the data to chart and whether the series appear in rows or columns. You want to chart the effect of sales for each store over the time period. Currently, the rows are accurately selected as the data series, as specified by the Series in option button located under the Data range. Because you selected the data before clicking the Chart Wizard button, Excel converted the range to absolute values and the correct range, `=Sheet1!$A$5:$G$9`, appears in the Data range text box.

4. Click **Next**

The Chart Wizard - Step 3 of 4 - Chart Options dialog box shows a sample chart using the data you selected. The store locations (the rows in the selected range) are plotted against the months (the columns in the selected range), and Excel added the months as labels for each data series. A legend shows each location and its corresponding color on the chart. The Titles tab lets you add titles to the chart and its axes. Other tabs let you modify the axes, legend, and other chart elements.

5. Click the **Chart title text box**, then type **MediaLoft Sales - Eastern Division**

After a moment, the title appears in the Sample Chart box. See Figure D-4.

6. Click **Next**

In the Chart Wizard - Step 4 of 4 - Chart Location dialog box, you determine the placement of the chart in the workbook. You can display a chart as an object on the current sheet, on any other existing sheet, or on a newly created chart sheet. A **chart sheet** in a workbook contains only a chart, which is linked to the worksheet data. The default selection—displaying the chart as an object in the sheet containing the data—will help Jim emphasize his point at the annual meeting.

### QuickTip

If you want to delete a chart, select it, then press [Delete].

7. Click **Finish**

The column chart appears and the Chart toolbar opens, either docked or floating, as shown in Figure D-5. Your chart might be in a different location and look slightly different. You will adjust the chart's location and size in the next lesson. The **selection handles**, the small squares at the corners and sides of the chart's border, indicate that the chart is selected. Anytime a chart is selected, as it is now, a blue border surrounds the worksheet data range, a green border surrounds the row labels, and a purple border surrounds the column labels.

8. Click the **Save button**  on the Standard toolbar

FIGURE D-3: First Chart Wizard dialog box

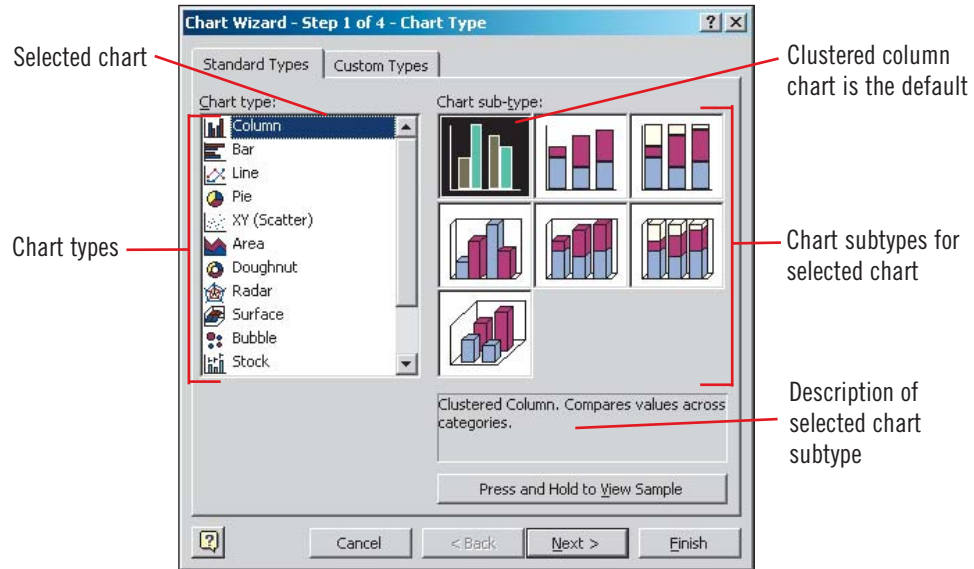


FIGURE D-4: Third Chart Wizard dialog box

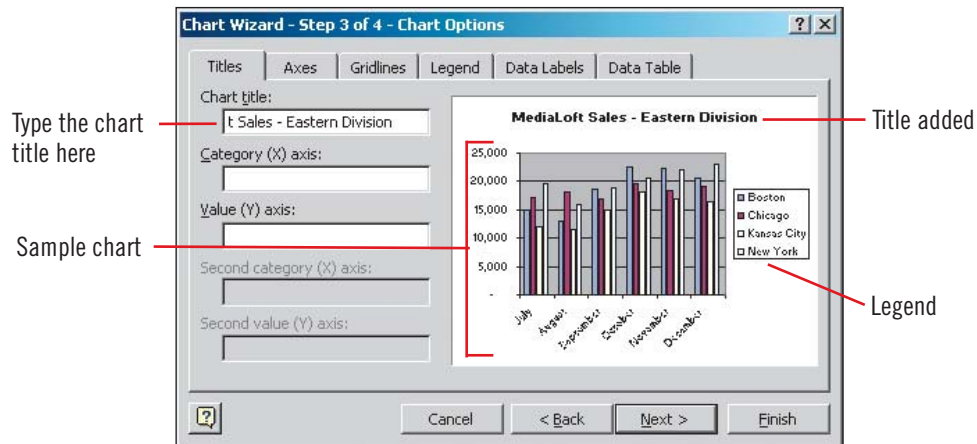
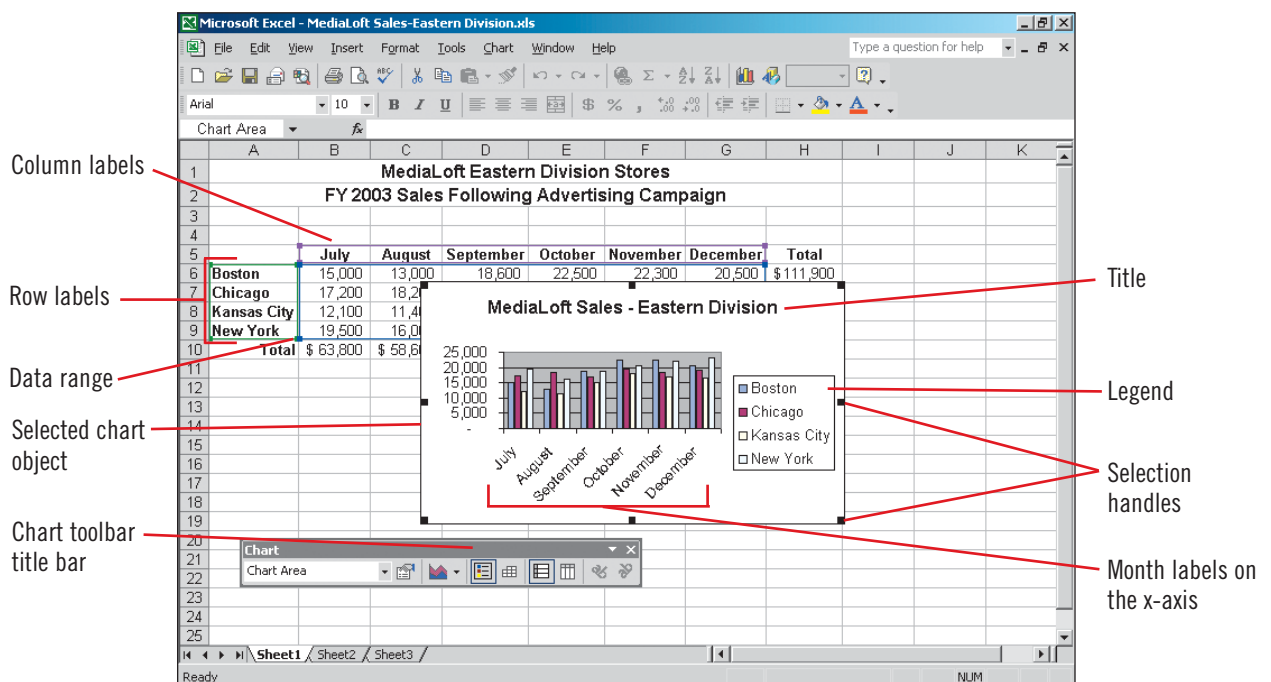



FIGURE D-5: Worksheet with column chart





Excel 2002

# Moving and Resizing a Chart

Charts are graphics, or drawn objects, and are not located in a specific cell or at a specific range address. An **object** is an independent element on a worksheet. You can select an object by clicking within its borders to surround it with selection handles. You can move a selected chart object anywhere on a worksheet without affecting formulas or data in the worksheet. However, any data changed in the worksheet will automatically be updated in the chart. You can resize a chart to improve its appearance by dragging its selection handles. You can even put a chart on another sheet, and it will still reflect the original data. Chart objects contain other objects, such as a title and legend, which you can move and resize. To move an object, select it, then drag it or cut and copy it to a new location. When you select a chart object, the name of the selected object appears in the Chart Objects list box on the Chart toolbar and in the name box.  Jim wants you to increase the size of the chart, position it below the worksheet data, then change the position of the legend.










## Steps 1234

### QuickTip

The Chart menu only appears on the menu bar when a chart or one of its objects is selected.

### QuickTip

Resizing a chart doesn't affect the data in the chart, only the way the chart looks on the sheet.

1. Make sure the chart is still selected, then position the pointer over the chart  
The pointer shape  indicates that you can move the chart or use a selection handle to resize it. For a table of commonly used chart pointers, refer to Table D-2. On occasion, the Chart toolbar obscures your view. You can dock the toolbar to make it easier to see your work.
2. If the chart toolbar is floating, click the **Chart toolbar's title bar**, drag it to the right edge of the status bar until it docks, then release the mouse button  
The toolbar is docked on the bottom of the screen.
3. Place  on a blank area near the edge of the chart, press and hold the left mouse button, using , drag it until the upper-left edge of the chart is at the top of row 13 and the left edge of the chart is at the left border of column A, then release the mouse button  
As you drag the chart, you can see a dotted outline representing the chart's perimeter. The chart appears in the new location.
4. Position the pointer on the right-middle selection handle until it changes to , then drag the right edge of the chart to the right edge of column H  
The chart is widened. See Figure D-6.
5. Position the pointer over the top-middle selection handle until it changes to , then drag it to the top of row 12
6. If the labels for the months do not fully appear, position the pointer over the bottom middle selection handle until it changes to , then drag down to display the months  
You can move the legend to improve the chart's appearance. You want to align the top of the legend with the top of the plot area.
7. Click the **legend** to select it, then drag the **legend** upward using  so the top of the legend aligns with the top of the plot area  
Selection handles appear around the legend when you click it; "Legend" appears in the Chart Objects list box on the Chart toolbar as well as in the name box, and a dotted outline of the legend perimeter appears as you drag. Changing any label will modify the legend text.
8. Click cell **A9**, type **NYC**, then click   
See Figure D-7. The legend changes to the text you entered.
9. Click the **Save button**  on the Standard toolbar

### QuickTip

Because the chart is no longer selected, the chart toolbar no longer appears.



FIGURE D-6: Worksheet with resized and repositioned chart

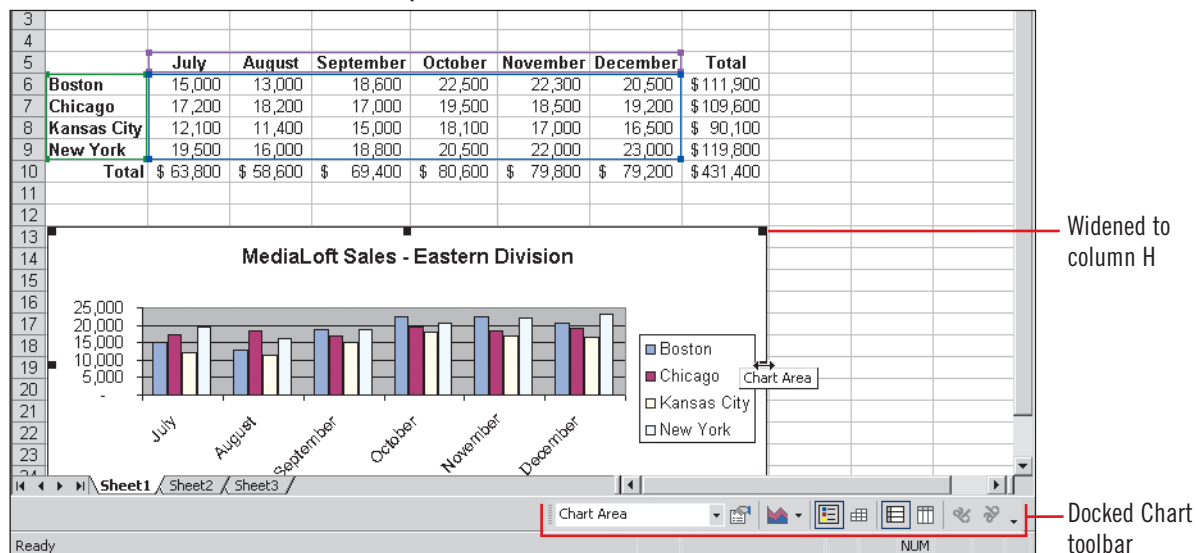


FIGURE D-7: Worksheet with repositioned legend

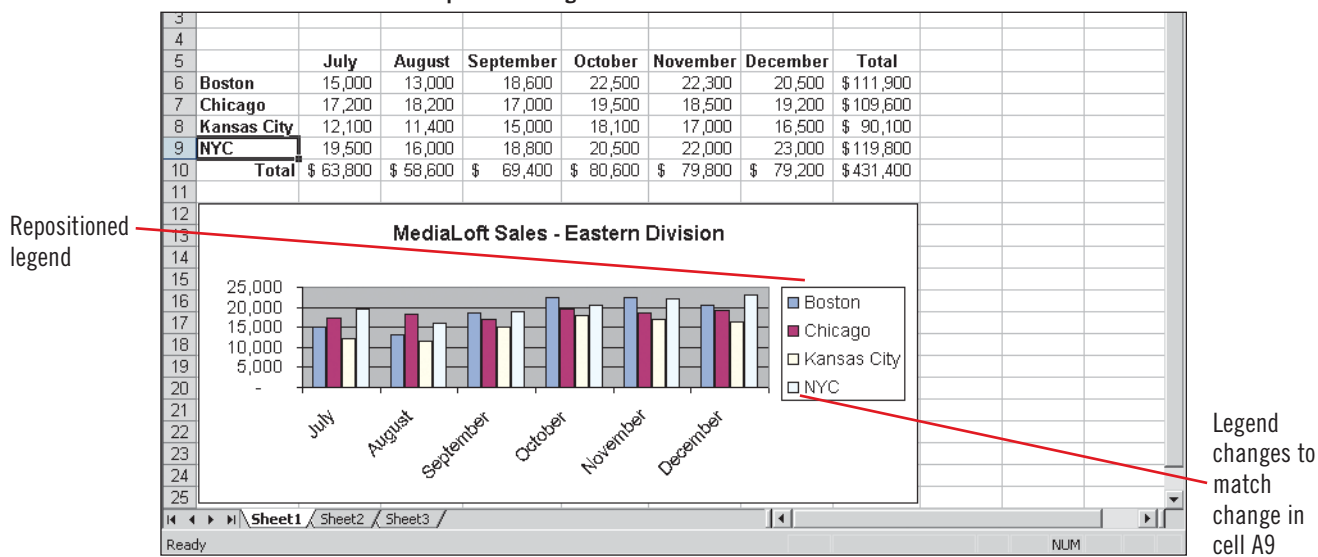


TABLE D-2: Commonly used pointers

name	pointer	use	name	pointer	use
Diagonal resizing		Change chart shape	I-beam		Edit chart text from corners
Draw		Create shapes	Move chart		Change chart location
Horizontal resizing		Change chart shape from left to right	Vertical resizing		Changes chart shape from top to bottom



## Identifying chart objects


There are many objects within a chart, such as bars and axes; Excel makes it easy to identify each of them. Placing the mouse pointer over a chart object displays a ScreenTip identifying it, whether the chart is selected

or not. If a chart—or any object in it—is selected, the ScreenTips still appear. In addition, the name of the selected chart object appears in the Chart Object list box on the Chart toolbar and in the name box.



## Excel 2002

# Editing a Chart

Once you've created a chart, it's easy to modify it. You can change data values in the worksheet, and the chart will automatically be updated to reflect the new data. You can also easily change the type of chart displayed by using the buttons on the Chart toolbar.  Jim looks over his worksheet and realizes that he entered the wrong data for the Kansas City store in November and December. After you correct this data, he wants to see how the same data looks using different chart types.

## Steps 1 2 3 4


### Trouble?

If you cannot see the chart and data together on your monitor, click View on the menu bar, click Zoom, then click 75%.

1. If necessary, scroll the worksheet so that you can see both the chart and row 8, containing the Kansas City sales figures, then place your mouse pointer over the December data point to display **Series "Kansas City" Point "December" Value: 16,500**

2. Click cell **F8**, type **19000** to correct the November sales figure, press [→], type **20500** in cell **G8**, then click 

The Kansas City columns for November and December reflect the increased sales figures. See Figure D-8. The totals in column H and row 10 are also updated.

3. Select the chart by clicking on a blank area within the chart border, then click the **Chart Type list arrow**  on the Chart toolbar

The chart type buttons appear on the Chart Type palette. Table D-3 describes the principal chart types available.

4. Click the **Bar Chart button**  on the palette

The column chart changes to a bar chart. See Figure D-9. You look at the bar chart, take some notes, then decide to convert it back to a column chart. You now want to see if the large increase in sales would be better presented with a three-dimensional column chart.

### QuickTip



As you work with charts, experiment with different formats for your charts until you get just the right look.

5. Click the **Chart Type list arrow** , then click the **3-D Column Chart button**  on the palette

A three-dimensional column chart appears. You notice that the three-dimensional column format is more crowded than the two-dimensional format but gives you a sense of volume.

### QuickTip

The chart type button displays the last chart type selected.

6. Click the **Chart Type list arrow** , then click the **Column Chart button**  on the palette

7. Click the **Save button**  on the Standard toolbar

TABLE D-3: Commonly used chart type buttons

















click to display a	click to display a	click to display a	click to display a
 area chart	 pie chart	 3-D area chart	 3-D pie chart
 bar chart	 (XY) scatter chart	 3-D bar chart	 3-D surface chart
 column chart	 doughnut chart	 3-D column chart	 3-D cylinder chart
 line chart	 radar chart	 3-D line chart	 3-D cone chart



FIGURE D-8: Worksheet with new data entered for Kansas City

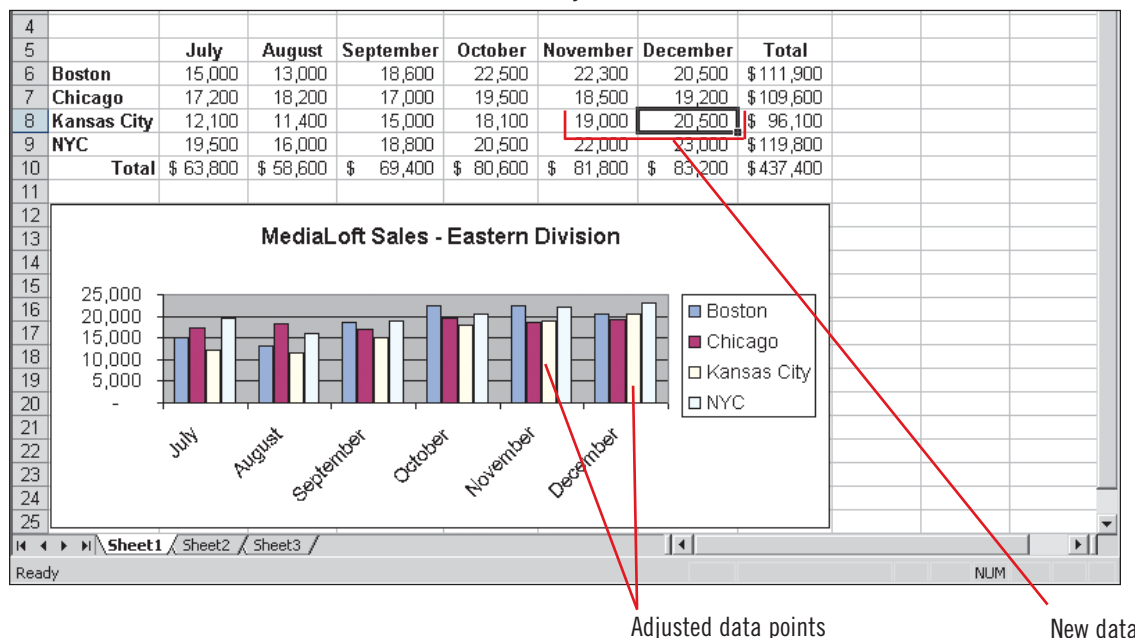
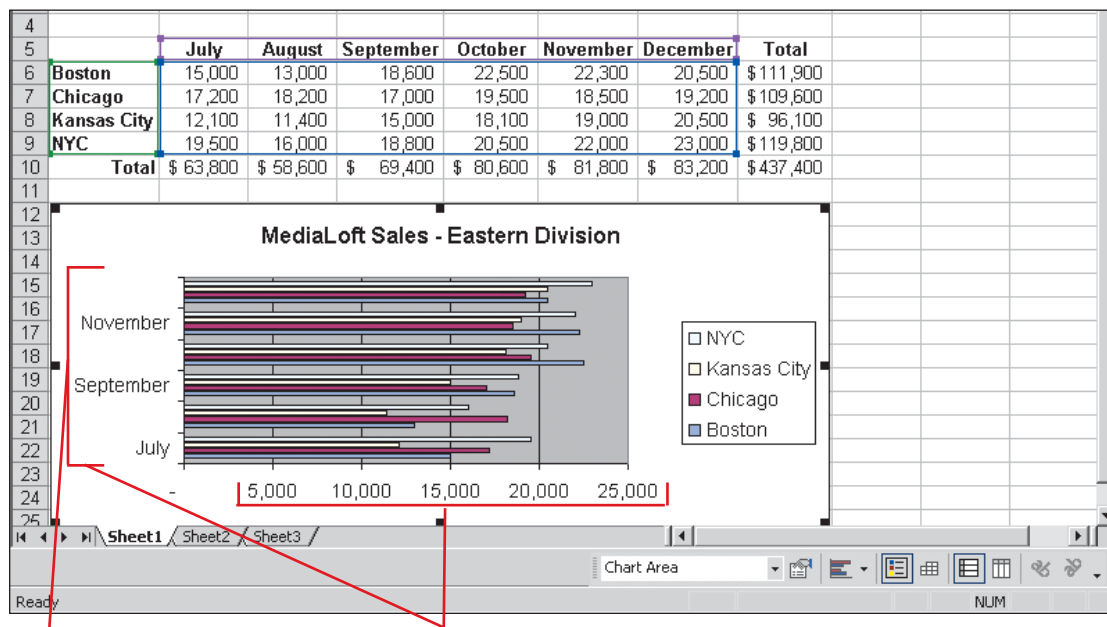


FIGURE D-9: Bar chart



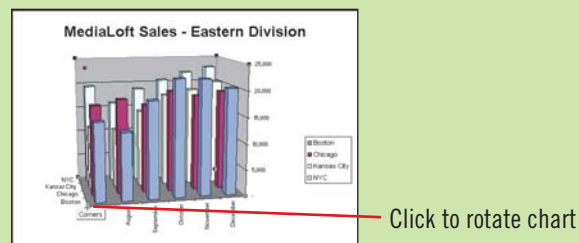
Your chart may show more axis labels    Row and column data are reversed



### Rotating a 3-D chart

In a three-dimensional chart, other data series in the same chart can sometimes obscure columns or bars. You can rotate the chart to obtain a better view. Click the chart, click the tip of one of its axes (select the Corners object), then drag the handles until a more pleasing view of the data series appears. See Figure D-10.


FIGURE D-10: 3-D chart rotated with improved view of data series






## Excel 2002

# Formatting a Chart

After you've created a chart using the Chart Wizard, you can easily modify its appearance. You can use the Chart toolbar and Chart menu to change the colors of data series and to add or eliminate a legend and gridlines. **Gridlines** are the horizontal and vertical lines in the chart that enable the eye to follow the value on an axis. The Chart toolbar buttons are listed in Table D-4.  Jim wants you to make some changes in the appearance of his chart. He wants to see if the chart looks better without gridlines, and he wants to change the color of a data series.

## Steps 1234

1. Make sure the chart is still selected  
Horizontal gridlines currently extend from the y-axis tick marks across the chart's plot area.
2. Click **Chart** on the menu bar, click **Chart Options**, click the **Gridlines tab** in the Chart Options dialog box, then click the **Major Gridlines check box** for the Value (Y) axis to remove the check  
The gridlines disappear from the sample chart in the dialog box, as shown in Figure D-11.
3. Click the **Major Gridlines check box** for the Value (Y) axis to reselect it, then click the **Minor Gridlines check box** for the Value (Y) axis  
Both major and minor gridlines appear in the sample. **Minor gridlines** show the values between the tick marks.
4. Click the **Minor Gridlines check box** for the Value (Y) axis, then click **OK**  
The minor gridlines disappear, leaving only the major gridlines on the Value axis. You can change the color of the columns to better distinguish the data series.
5. With the chart selected, double-click any **light blue column** in the NYC data series  
Handles appear on all the columns in the NYC data series, and the Format Data Series dialog box opens, as shown in Figure D-12.
6. Click the **fuchsia box** (fourth row, first column) in the Patterns tab, then click **OK**  
All the columns for the series become fuchsia, and the legend changes to match the new color. Compare your finished chart to Figure D-13.
7. Click the **Save button**  on the Standard toolbar

### QuickTip

Add labels, values, and percentages to your chart by using the Data Labels tab in the Chart Options dialog box.

TABLE D-4: Chart enhancement buttons









button	use
	Displays formatting dialog box for the selected object on the chart
	Selects chart type (chart type on button changes to last chart type selected)
	Adds/deletes legend
	Creates a data table within the chart
	Charts data by row
	Charts data by column
	Angles selected text downward (clockwise)
	Angles selected text upward (counter clockwise)

FIGURE D-11: Chart Options dialog box

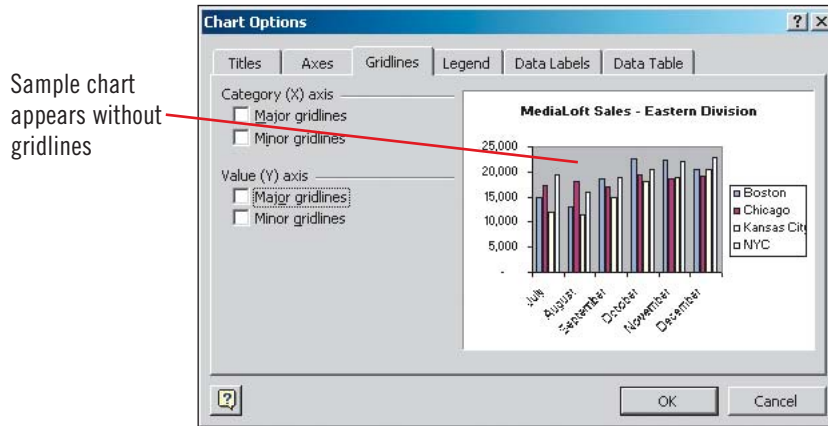


FIGURE D-12: Format Data Series dialog box

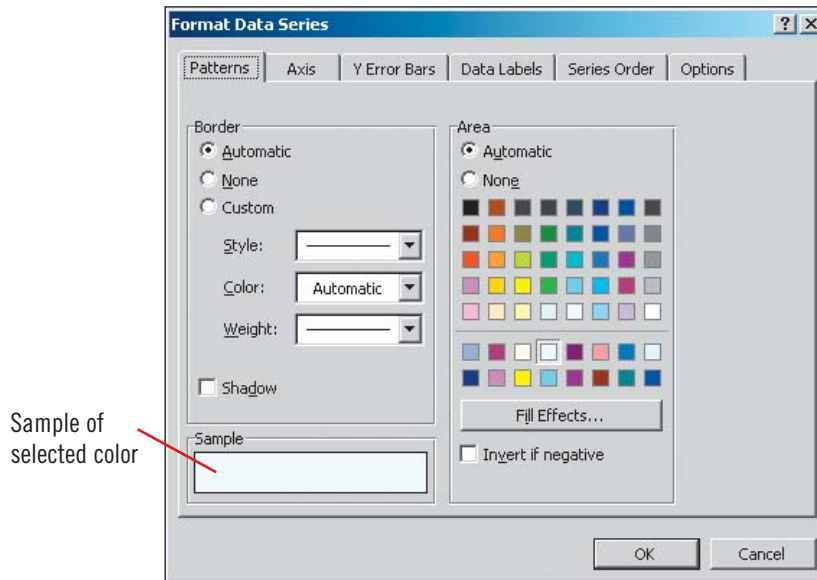
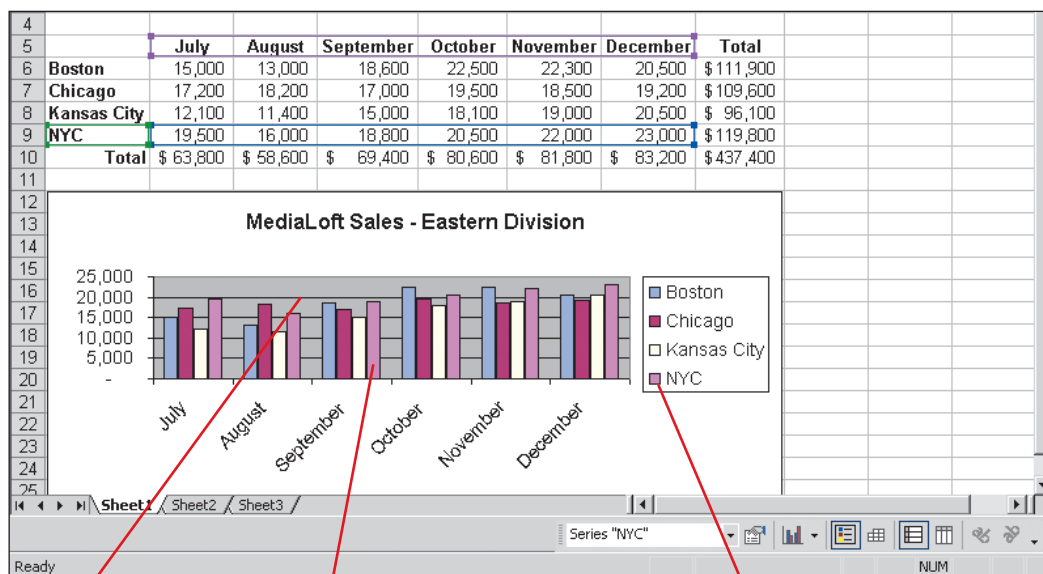



FIGURE D-13: Chart with formatted data series






## Excel 2002

# Enhancing a Chart


There are many ways to enhance a chart to make it easier to read and understand. You can create titles for the x-axis and y-axis, add graphics, or add background color. You can even format the text you use in a chart.  Jim wants you to improve the appearance of his chart by creating titles for the x-axis and y-axis and adding a drop shadow to the title.

## Steps 1234

### QuickTip

To edit the text, position the pointer over the selected text box until it changes to , click, then edit the text.

### QuickTip

The Format button  opens a dialog box with the appropriate formatting options for the selected chart element. The ScreenTip for the button changes, depending on the selected object.

### QuickTip

You can also double-click the Category axis title to open the Format Axis Titles dialog box.

1. Click a blank area of the chart to select it, click **Chart** on the menu bar, click **Chart Options**, click the **Titles tab** in the Chart Options dialog box, then type **Months** in the **Category (X) axis text box**

Descriptive text on the x-axis helps readers understand the chart. The word “Months” appears below the month labels in the sample chart, as shown in Figure D-14.

2. In the **Value (Y) axis text box**, type **Sales (in \$)**, then click **OK**

A selected text box containing “Sales (in \$)” appears rotated 90 degrees to the left of the y-axis. Once the Chart Options dialog box is closed, you can move the Value or Category axis title to a new position by clicking on an edge of the object then dragging it.

3. Press **[Esc]** to deselect the Value-axis title

Next you decide that a border with a drop shadow will enhance the chart title.

4. Click the chart title, **MediaLoft Sales – Eastern Division**, to select it

5. Click the **Format Chart Title button**  on the Chart toolbar to open the Format Chart Title dialog box, make sure the **Patterns tab** is selected, then click the **Shadow check box** to select it

A border with a drop shadow surrounds the title in the Sample area.

6. Click the **Font tab** in the Format Chart Title dialog box, click **Times New Roman** in the Font list, click **Bold Italic** in the Font style list, click **OK**, then press **[Esc]** to deselect the chart title

A border with a drop shadow appears around the chart title, and the chart title text is reformatted.

7. Click **Months** (the Category axis title), click , click the **Font tab** if necessary, select **Times New Roman** in the Font list, then click **OK**

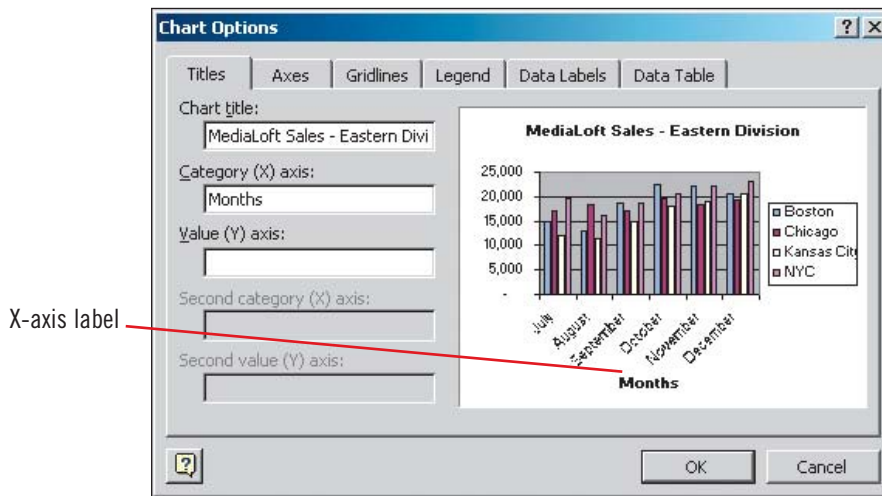
The Category axis title appears in the Times New Roman font.

8. Click **Sales (in \$)** (the Value axis title), click , click the **Font tab** if necessary, click **Times New Roman** in the Font list, click **OK**, then press **[Esc]** to deselect the title

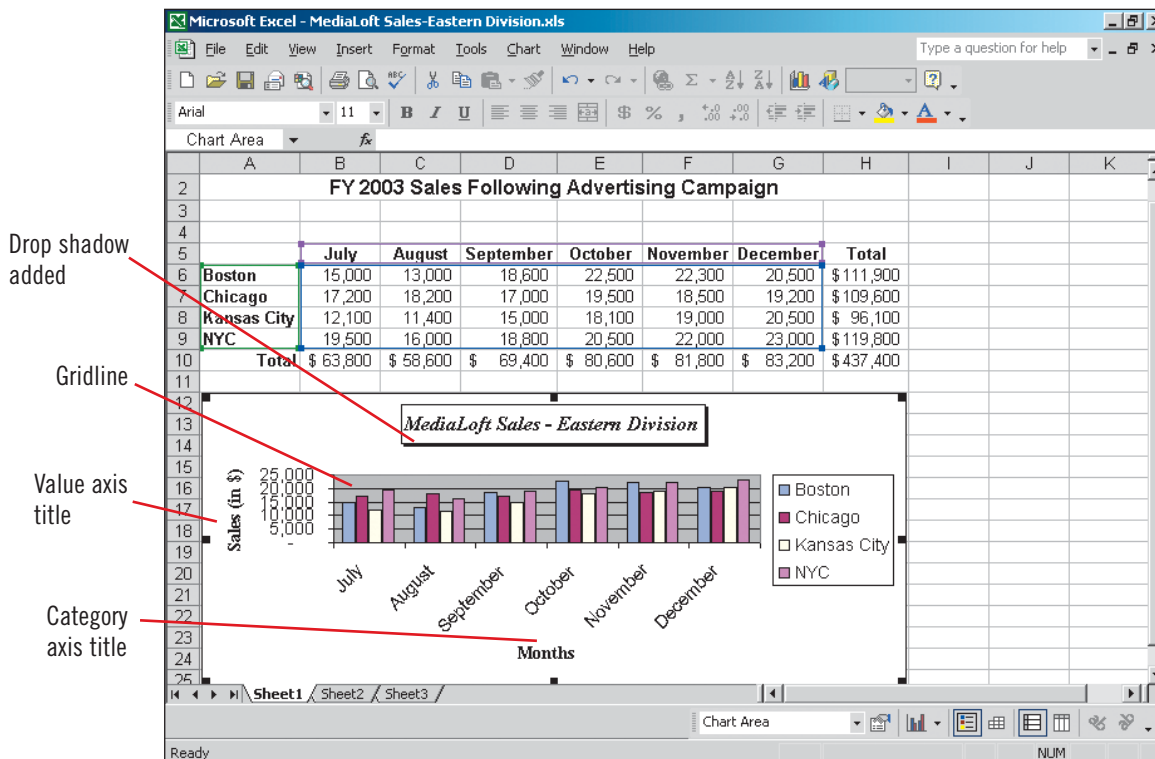
The Value axis title appears in the Times New Roman font. Compare your chart to Figure D-15.

9. Click the **Save button**  on the Standard toolbar

**FIGURE D-14:** Sample chart with Category (X) axis text



**FIGURE D-15:** Enhanced chart



## Changing text alignment in charts


You can modify the alignment of axis text to make it fit better within the plot area. With a chart selected, double-click the axis text to be modified. The Format Axis dialog box opens. Click the Alignment tab, then

change the alignment by typing the number of degrees in the Degrees text box, or by clicking a marker in the Degrees sample box. When you have made the desired changes, click OK.



Excel 2002

# Annotating and Drawing on a Chart

You can add arrows and text annotations to point out critical information in your charts. **Text annotations** are labels that you add to a chart to further describe your data. You can draw lines and arrows that point to the exact locations you want to emphasize.  Jim wants you to add a text annotation and an arrow to highlight the October sales increase.

## Steps 1234



### 1. Make sure the chart is selected

To call attention to the Boston October sales increase, you can draw an arrow that points to the top of the Boston October data series with the annotation, “Due to ad campaign.” With the chart selected, simply typing text in the formula bar creates annotation text.

### 2. Type **Due to ad campaign**, then click the **Enter button**

As you type, the text appears in the formula bar. After you confirm the entry, the text appears in a selected text box within the chart window.

### Trouble?

If the pointer changes to  or , release the mouse button, click outside the text box area to deselect it, select the text box, then repeat Step 3.

### 3. Point to an edge of the text box so that the pointer changes to

### 4. Drag the **text box** above the chart, as shown in Figure D-16, then release the mouse button

You can add an arrow to point to a specific area or item in a chart by using the Drawing toolbar.


### 5. Click the **Drawing button** on the Standard toolbar

The Drawing toolbar appears below the worksheet.


### QuickTip

To annotate charts, you can also use the Callout shapes on the AutoShapes menu in the Drawing toolbar.

### 6. Click the **Arrow button** on the Drawing toolbar, then move the pointer over the chart

The pointer changes to , and the status bar displays “Click and drag to insert an AutoShape.” When you draw an arrow, the point farthest from where you start will have the arrowhead.

### QuickTip

You can also insert text and an arrow in the data section of a worksheet by clicking the Text Box button  on the Drawing toolbar, drawing a text box, typing the text, then adding the arrow.

### 7. Position under the **t** in the word “to” in the text box, press and hold the left mouse button, drag the line to the Boston column in the October sales series, then release the mouse button

An arrow appears, pointing to Boston October sales. The arrow is a selected object in the chart; you can resize, format, or delete it just like any other object. Compare your finished chart to Figure D-17.

### 8. Click to close the Drawing toolbar

### 9. Click the **Save button** on the Standard toolbar



FIGURE D-16: Repositioning text annotation

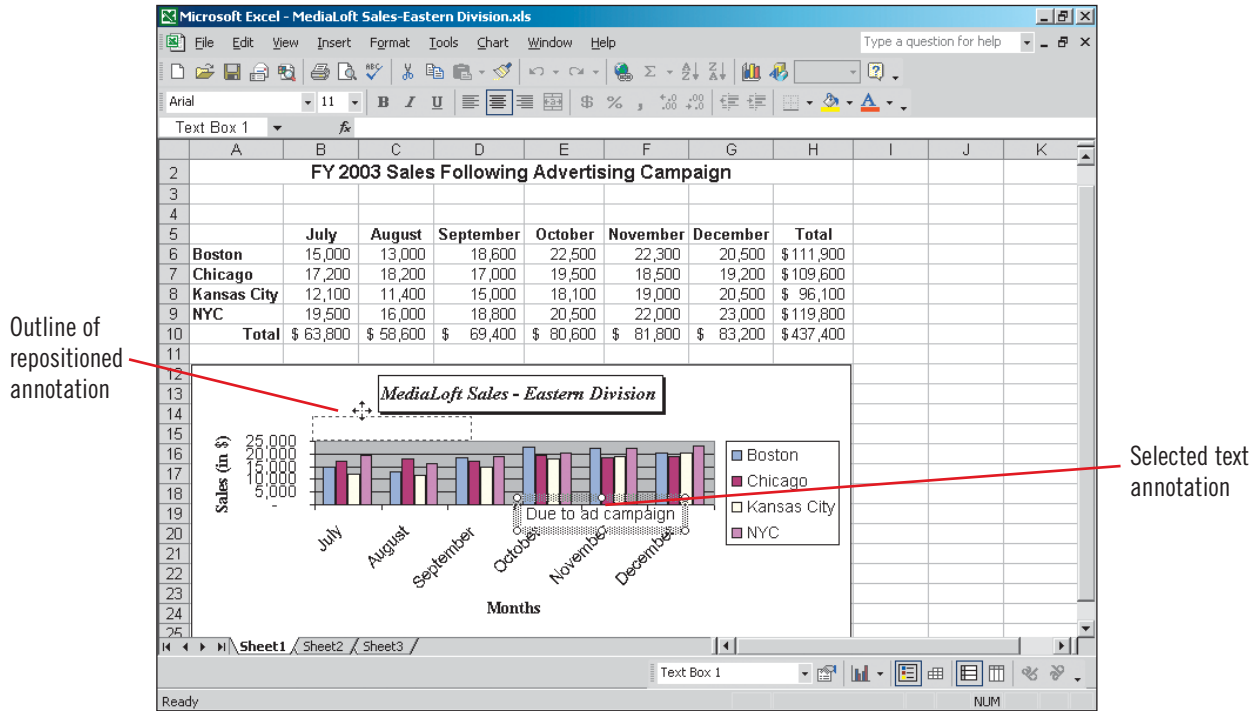
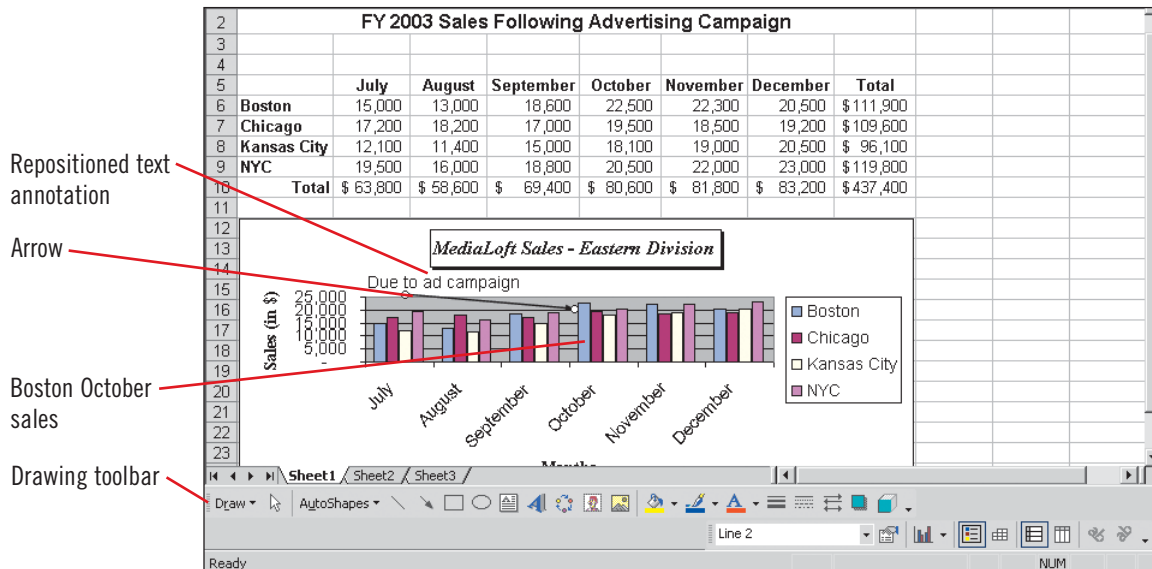


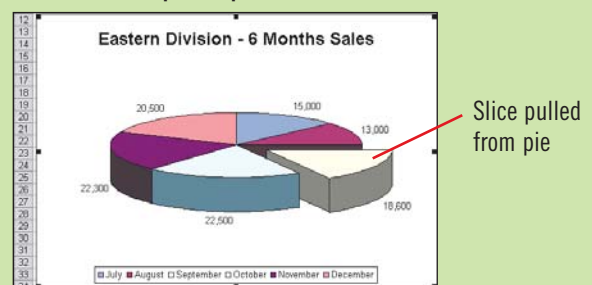
FIGURE D-17: Completed chart with text annotation and arrow



## Exploding a pie slice

Just as an arrow can call attention to a data series, you can emphasize a pie slice by exploding, or pulling it away from, the pie chart. Once the pie chart is selected, click the pie to select it, click the desired slice to select only that slice, then drag the slice away from the pie, as shown in Figure D-18. After you change the chart type, you may need to adjust arrows within the chart.


FIGURE D-18: Exploded pie slice





Excel 2002

# Previewing and Printing a Chart

After you complete a chart, you will often need to print it. Like previewing a worksheet, previewing a chart lets you see what your chart looks like before you print it. You can print a chart by itself or as part of the worksheet.  Jim wants a printed version of the chart for the annual meeting. He wants you to print the worksheet and the chart together, so that the shareholders can see the actual sales numbers for the eastern division stores.

## Steps 1 2 3 4

### QuickTip

The preview will show in color if you have a color printer selected.

1. Press **[Esc]** to deselect the arrow and the chart, enter your name in cell **A35**, then press **[Ctrl][Home]**

2. Click the **Print Preview button**  on the Standard toolbar

The Print Preview window opens. You decide the chart and data would make better use of the page if they were printed in **landscape** orientation—that is, with the text running the long way on the page. You will use Page Setup to change the page orientation.

3. Click **Setup** on the Print Preview toolbar to open the Page Setup dialog box, then click the **Page tab**, if necessary

4. Click the **Landscape option button** in the Orientation section, as shown in Figure D-19, then click **OK**

Because each page has a default left margin of 0.75", the chart and data will print too far over to the left of the page. You can change this setting using the Margins tab.

### QuickTip

The printer you have selected may affect the appearance of the preview screen.

5. Click **Setup** on the Print Preview toolbar, click the **Margins tab**, click the **Horizontally check box** (under Center on page), then click **OK**

The data and chart are positioned horizontally on the page. See Figure D-20.

6. Click **Print** to display the Print dialog box, then click **OK**

The data and chart print, and you are returned to the worksheet. If you want, you can choose to preview (and print) only the chart.

7. Select the **chart**, then click the **Print Preview button** 

The chart appears in the Print Preview window. If you wanted to, you could print the chart by clicking the Print button on the Print Preview toolbar.

8. Click **Close** on the Print Preview toolbar

9. Click the **Save button**  on the Standard toolbar, close the workbook, then exit Excel

FIGURE D-19: Page tab of the Page Setup dialog box

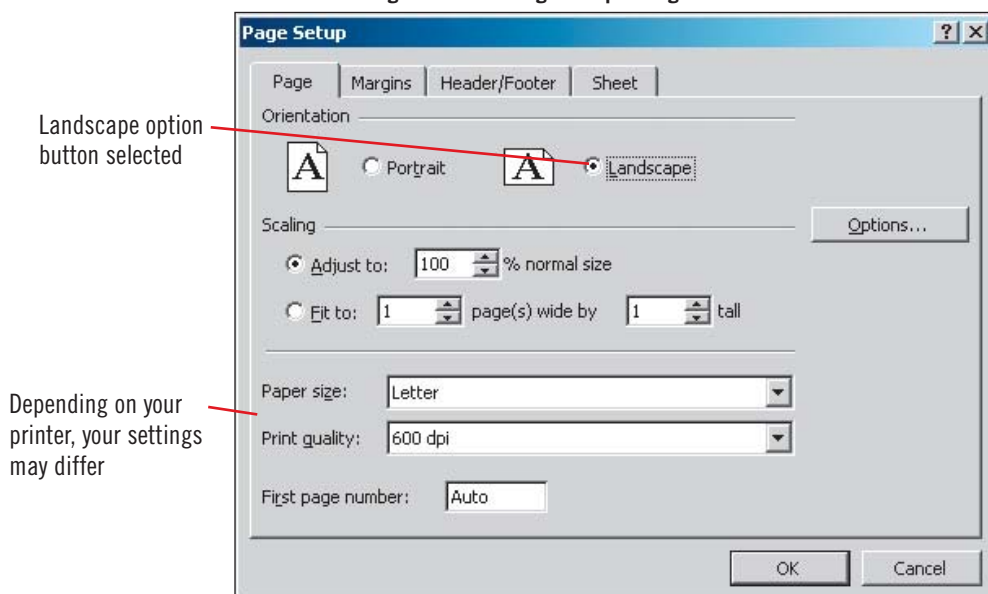
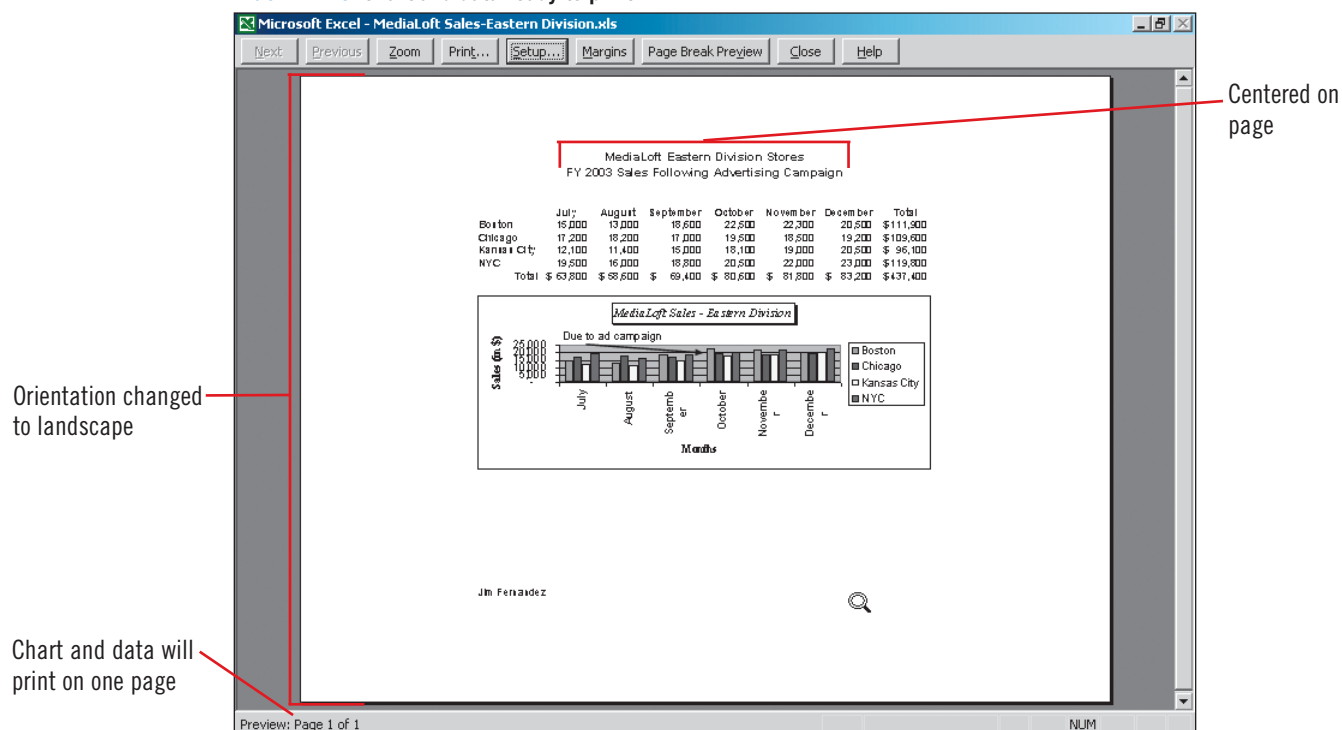


FIGURE D-20: Chart and data ready to print



## Using the Page Setup dialog box for a chart

When a chart is selected, a different Page Setup dialog box opens than when neither the chart nor data is selected. The Center on Page options are not always available. To accurately position a chart on the page, you can click the Margins button on the Print Preview toolbar. Margin lines appear on the screen

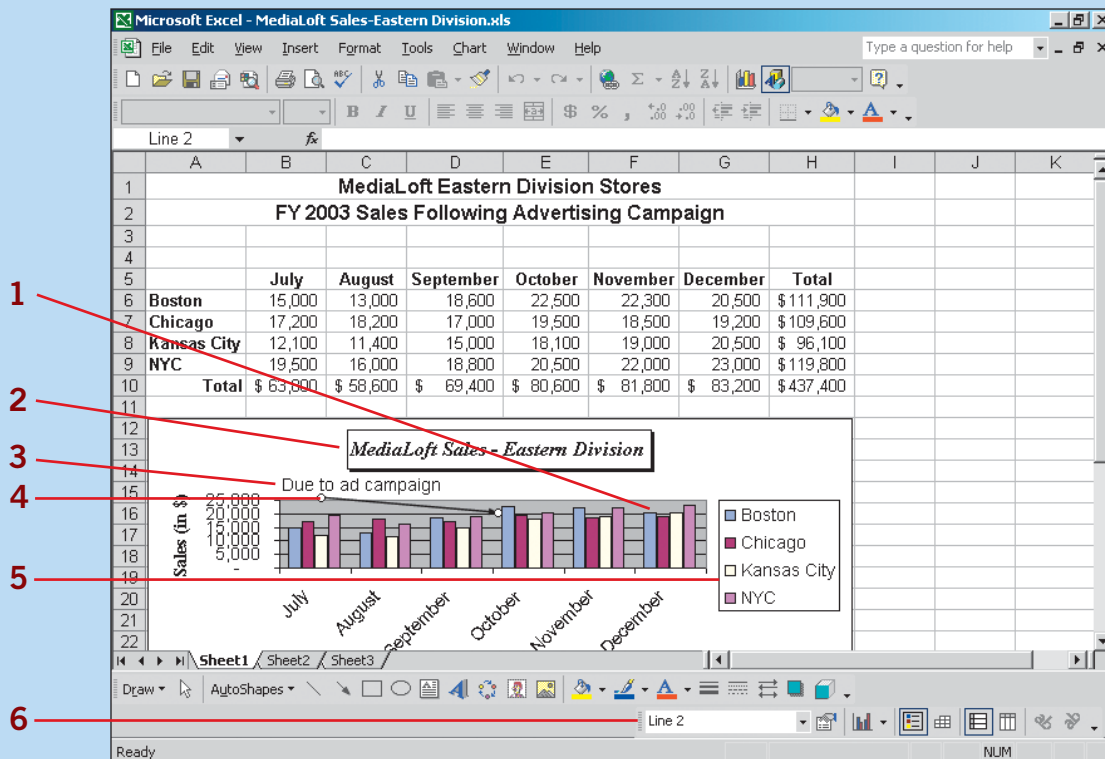
and show you exactly how the margins will appear on the page. The exact placement appears in the status bar when you press and hold the mouse button on the margin line. You can drag the lines to the exact settings you want.

# Practice

## ► Concepts Review

Label each element of the Excel chart shown in Figure D-21.

FIGURE D-21







Match each chart type with the statement that describes it.

- |                 |   |
|-----------------|---|
| 7. Column       | a. Shows how volume changes over time                                     |
| 8. Area         | b. Compares data as parts of a whole                                      |
| 9. Pie          | c. Displays a column and line chart using different scales of measurement |
| 10. Combination | d. Compares trends over even time intervals                               |
| 11. Line        | e. Compares data over time—the Excel default                              |

Select the best answer from the list of choices.

12. The object in a chart that identifies patterns used for each data series is a:
- Data point.
  - Plot.
  - Legend.
  - Range.

13. What is the term for a row or column on a chart?
- Range address
  - Axis title
  - Chart orientation
  - Data series
14. The orientation of a page whose dimensions are 11" wide by 8½" tall is:
- Sideways.
  - Longways.
  - Portrait.
  - Landscape.
15. In a 2-D chart, the Value axis is the:
- X-axis.
  - Z-axis.
  - D-axis.
  - Y-axis.
16. In a 2-D chart, the Category axis is the:
- X-axis.
  - Z-axis.
  - D-axis.
  - Y-axis.
17. Which pointer is used to resize a chart object?
- 
  - 
  - 
  - 

## ► Skills Review

### 1. Create a chart.

- Start Excel, open a new workbook, then save it as **MediaLoft Vancouver Software Usage** in the drive and folder where your Project Files are stored.
- Enter the information from the following table in your worksheet in range A1:F6. Resize columns as necessary.

	Excel	Word	PowerPoint	Access	Publisher
Accounting	27	15	2	7	1
Marketing	13	35	35	15	35
Engineering	25	5	3	1	5
Personnel	15	25	10	10	27
Production	6	5	22	0	25

- c. Save your work.
- d. Select the range containing the data and headings.
- e. Start the Chart Wizard.
- f. In the Chart Wizard, select a clustered column chart, then verify that the series are in rows; add the chart title **Software Usage by Department**, and make the chart an object on the worksheet.
- g. After the chart appears, save your work.

## 2. Move and resize a chart.

- a. Make sure the chart is still selected.
- b. Move the chart beneath the data.
- c. Resize the chart so it extends to column L.
- d. Move the legend below the charted data. (*Hint: Change the legend's position by using the Legend tab in the Chart Options dialog box.*)
- e. Save your work.

## 3. Edit a chart.

- a. Change the value in cell B3 to **6**. Notice the change in the chart.
- b. Select the chart.
- c. Resize the chart so the bottom is at row 24.
- d. Use the Chart Type list arrow to change the chart to a 3-D Column Chart.
- e. Rotate the chart to move the data.
- f. Change the chart back to a column chart.
- g. Save your work.

## 4. Format a chart.

- a. Make sure the chart is still selected.
- b. Use the Chart Options dialog box to turn off the displayed gridlines.
- c. Change the font used in the Category and Value labels to Times New Roman. (*Hint: Click the axis to select it, then proceed as you would to change an axis title.*)
- d. Turn on the major gridlines for the Value axis.
- e. Change the title's font to Times New Roman.
- f. Save your work.

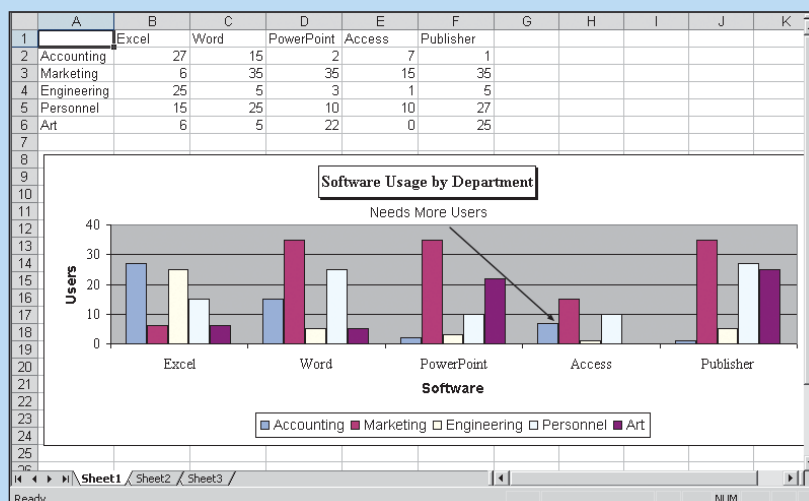
## 5. Enhance a chart.

- a. Make sure the chart is selected, then select the **Titles tab** in the Chart Options dialog box.
- b. Enter **Software** as the x-axis title.
- c. Enter **Users** as the y-axis title.
- d. Change **Production** in the legend to **Art**. (*Hint: Change the text entry in the worksheet.*)
- e. Add a drop shadow to the title.
- f. Save your work.



**6. Annotate and draw on a chart.**

- Make sure the chart is selected, then create the text annotation **Needs More Users**.
- Position the text annotation beneath the title.
- Below the text annotation, use the Drawing toolbar to create an arrow similar to the one in Figure D-22 that points to the area containing the Access data.
- Save your work.

**FIGURE D-22****7. Preview and print a chart.**

- In the worksheet, enter your name in cell A30.
- Preview the chart and data.
- Change the page orientation to landscape.
- Center the page contents horizontally and vertically on the page.
- Print the data and chart from the Print Preview window.
- Save your work.
- Preview only the chart, then print it.
- Close the workbook, then exit Excel.

## ► Independent Challenge 1

You are the operations manager for the Springfield, Oregon Theater Group. Each year the group applies to various state and federal agencies for matching funds. For this year's funding proposal, you need to create charts to document the number of productions in previous years.

- Sketch a sample worksheet on a piece of paper describing how you will create the charts. Which type of chart is best suited for the information you need to display? What kind of chart enhancements do you want to use? Will a 3-D effect make your chart easier to understand?
- Start Excel, open the Project File EX D-2, then save it as **Springfield Theater Group** in the drive and folder where your Project Files are stored.
- Create a column chart for the data, accepting all Chart Wizard defaults.
- Change at least one of the colors used in a data series.
- Create at least two additional charts for the same data to show how different chart types display the same data. (*Hint: Move each chart to a new location, then deselect each chart before using the Wizard to create the next one.*)
- After creating the charts, make the appropriate enhancements. Include chart titles, legends, and value and category axis titles, using the suggestions in the following table:

### suggested chart enhancements

Title	Types and Number of Plays
Legend	Year 1, Year 2, Year 3, Year 4
Value axis title	Number of Plays
Category axis title	Play Types

- g. Add data labels.
- h. Enter your name in a worksheet cell.
- i. Save your work. Before printing, preview the file so you know what the charts will look like. Adjust any items as necessary.
- j. Print the worksheet (charts and data).
- k. Close the workbook, then exit Excel.

## ► Independent Challenge 2

Beautiful You, a small beauty salon, has been using Excel for several months. One of your responsibilities at the Beautiful You Salon is to re-create the company's records using Excel. Another is to convince the current staff that Excel can help them make daily operating decisions more easily and efficiently. To do this, you've decided to create charts using the previous year's operating expenses, including rent, utilities, and payroll. The manager will use these charts at the next monthly meeting.

- a. Decide which data in the worksheet should be charted. Sketch two sample charts. What type of charts are best suited for the information you need to show? What kind of chart enhancements will be necessary?
- b. Start Excel, open the Project File EX D-3 from the drive and folder where your Project Files are stored, then save it as **BY Expense Charts**.
- c. Create a column chart on the worksheet, containing the expense data for all four quarters.
- d. Using the same data, create an area chart and one additional chart using any other appropriate chart type. (*Hint:* move each chart to a new location, then deselect it before using the Wizard to create the next one.)
- e. Add annotated text and arrows to the column chart that highlight any important data or trends.
- f. In one chart, change the color of a data series, then in another chart, use black-and-white patterns only. (*Hint:* use the Fill Effects button in the Format Data Series dialog box. Then display the Patterns tab. Adjust the Foreground color to black and the Background color to white, then select a pattern.)
- g. Enter your name in a worksheet cell.
- h. Save your work. Before printing, preview each chart so you know what the charts will look like. Adjust any items as needed.
- i. Print the charts.
- j. Close the workbook, then exit Excel.

## ► Independent Challenge 3

You are working as an account representative at the Bright Light Ad Agency. You have been examining the expenses charged to clients of the firm. The Board of Directors wants to examine certain advertising expenses and has asked you to prepare charts that can be used in this evaluation.

- a. Start Excel, open the Project File EX D-4 from the drive and folder where your Project Files are stored, then save it as **Bright Light**.
- b. Decide what types of charts would be best suited for the data in the range A16:B24. Sketch two sample charts. What kind of chart enhancements will be necessary?
- c. Use the Chart Wizard to create at least three different types of charts that show the distribution of advertising expenses. (*Hint:* Move each chart to a new location, then deselect it before using the Wizard to create the next one.)
- d. Add annotated text and arrows highlighting important data, such as the largest expense.
- e. Change the color of at least one data series.
- f. Add chart titles and Category and Value axis titles. Format the titles with a font of your choice. Place a drop shadow around the chart title.

- g. Enter your name in a worksheet cell.
- h. Save your work. Before printing, preview the file so you know what the charts will look like. Adjust any items as needed. Be sure the chart is placed appropriately on the page.
- i. Print the charts, close the workbook then exit Excel.



## Independent Challenge 4

Your company, Film Distribution, is headquartered in Montreal, and is considering opening a new office in the U.S. They would like you to begin investigating possible locations. You can use the Web to find and compare median pay scales in specific cities to see how relocating will affect the standard of living for those employees who move to the new office.

- a. Start Excel, open a new workbook, then save it as **New Location Analysis** in the drive and folder where your Project Files are located.
- b. Connect to the Internet, use your browser to go to [homeadvisor.msn.com/pickaplace/comparecities.asp](http://homeadvisor.msn.com/pickaplace/comparecities.asp). (If this address is no longer current, go to [homeadvisor.msn.com](http://homeadvisor.msn.com) or [www.homefair.com](http://www.homefair.com), and follow links for **Moving and Relocation, Compare Cost of Living**, or similar links to find the information needed for your spreadsheet. You can also use your favorite search engine to locate other sites on cost of living comparisons.)
- c. Determine the median incomes for Seattle, San Francisco, Dallas, Salt Lake City, Memphis, and Boston. Record this data on a sheet named Median Income in your workbook. (*Hint: See the table below for suggested data layout.*)

Location	Income
Seattle	
San Francisco	
Dallas	
Salt Lake City	
Memphis	
Boston	

- d. Format the data so it looks attractive and professional.
- e. Create any type of column chart, with the data series in columns, on the same worksheet as the data. Include a descriptive title.
- f. Determine how much an employee would need to earn in Seattle, San Francisco, Dallas, Memphis, and Boston to maintain the same standard of living as if the company chose to relocate to Salt Lake City and pay \$75,000. Record this data on a sheet named **Standard of Living** in your workbook.
- g. Format the data so it looks attractive and professional.
- h. Create any type of chart you feel is appropriate on the same worksheet as the data. Include a descriptive title.
- i. Do not display the legends in either chart.
- j. Change the color of the data series in the Standard of Living chart to bright green.
- k. Remove the major gridlines in the Median Income chart.
- l. Format the Value axis in both charts so that the salary income displays a 1000 separator (comma) but no decimal places.
- m. Enter your name in a cell in both worksheets.
- n. Save the workbook. Preview the chart and change margins as necessary.
- o. Print each worksheet, including the data and chart, making setup modifications as necessary.
- p. Close the workbook, then exit Excel.

## ► Visual Workshop

Modify a worksheet, using the skills you learned in this unit and using Figure D-23 for reference. Open the Project File EX D-5 from the drive and folder where your Project Files are stored, then save it as **Quarterly Advertising Budget**. Create the chart, then change the chart to reflect Figure D-23. Enter your name in cell A13, save, preview, then print your results.

FIGURE D-23

